1. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$3^{5x-2} = \left(\frac{1}{64}\right)^{2x+4}$$

A. $x \in [0.7, 2.3]$

B. $x \in [-0.5, 1]$

C. $x \in [-5.8, -4]$

D. $x \in [-1.3, -0.9]$

E. There is no Real solution to the equation.

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2. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+7} - 4$$

A. $(-\infty, a), a \in [-5, -3]$

B. $[a, \infty), a \in [2, 5]$

C. $(a, \infty), a \in [2, 5]$

D. $(-\infty, a], a \in [-5, -3]$

E. $(-\infty, \infty)$

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3. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{2x+4} = \left(\frac{1}{216}\right)^{4x-5}$$

A. $x \in [-11.9, -8.5]$

B. $x \in [0.1, 1.9]$

C. $x \in [3.3, 5.2]$

D. $x \in [-0.8, -0.1]$

E. There is no Real solution to the equation.

4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-3x+7)+4=3$$

A. $x \in [-2.41, -1.96]$

B. $x \in [2.08, 2.29]$

C. $x \in [-39.55, -39.22]$

D. $x \in [2.64, 2.86]$

E. There is no Real solution to the equation.

5. Solve the equation for x and choose the interval that contains x (if it exists).

$$8 = \ln \sqrt[5]{\frac{26}{e^{8x}}}$$

A. $x \in [-1.64, -1.45]$

B. $x \in [-4.64, -4.54]$

C. $x \in [-1.71, -1.63]$

D. There is no Real solution to the equation.

E. None of the above.

6. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x+1) - 2$$

A. $(a, \infty), a \in [-1.49, -0.82]$

B. $[a, \infty), a \in [-2.14, -1.75]$

C. $(-\infty, a], a \in [1.85, 2.34]$

D. $(-\infty, a), a \in [1, 1.14]$

E. $(-\infty, \infty)$

7. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-6} - 9$$

A. $[a, \infty), a \in [8, 15]$

B. $(-\infty, a], a \in [-13, -7]$

C. $(-\infty, a), a \in [-13, -7]$

D. $(a, \infty), a \in [8, 15]$

E. $(-\infty, \infty)$

8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-3x + 8) + 4 = 2$$

A. $x \in [-5.67, -2.67]$

B. $x \in [4, 10]$

C. $x \in [9.33, 16.33]$

D. $x \in [1.65, 7.65]$

E. There is no Real solution to the equation.

9. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 3) + 9$$

A. $[a, \infty), a \in [8.8, 12.2]$

B. $(a, \infty), a \in [-4, -2.2]$

C. $(-\infty, a], a \in [-9.1, -8.6]$

D. $(-\infty, a), a \in [0.2, 4.3]$

E. $(-\infty, \infty)$

10. Solve the equation for x and choose the interval that contains x (if it exists).

$$17 = \ln \sqrt[5]{\frac{24}{e^{4x}}}$$

A. $x \in [19.46, 23.46]$

B. $x \in [-6.34, -2.34]$

C. $x \in [-9.71, -6.71]$

D. There is no Real solution to the equation.

E. None of the above.